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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,268	12/02/2003	Daisuke Hirono	018842.1282	5546
24735	7590	08/23/2007		
BAKER BOTTS LLP C/O INTELLECTUAL PROPERTY DEPARTMENT THE WARNER, SUITE 1300 1299 PENNSYLVANIA AVE, NW WASHINGTON, DC 20004-2400			EXAMINER MCCLOUD, RENATA D	
			ART UNIT 2837	PAPER NUMBER
			NOTIFICATION DATE 08/23/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@bakerbotts.com

Office Action Summary

Application No.

10/725,268

Applicant(s)

HIRONO, DAISUKE

Examiner

Renata McCloud

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12, 14, 15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) 2, 6, 8 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 7, 11, 12, 14, 15, 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,5,7,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US 5068777) in view of Takeda (US 5923135)

Claim 1: Ito teaches a motor control system comprising junction temperature calculating device for calculating a junction temperature of a switch of a converter including a temperature sensor (fig. 1:800) detecting the temperature at a switching element, wherein the junction temperature is determined from an equation (col. 6: eqn 4) wherein T_a is the measured temperature at a switch (col. 6:5-6), R_{th} is the thermal resistance (col. 6:15-16), current loss $P_{on} \cdot (I_o - I_o)$ and switching loss $P_{sw} \cdot (I_o - I_c)$ (col. 6:17-31) and junction temperature reducing element for comparing the junction with a preset temperature limit (col. 6:38-59) and for performing junction temperature reduction by reducing the switching loss $P_{sw} \cdot (I_o - I_c)$ (col. 6:50-59) to make the junction temperature equal to or less than the temperature limit when the junction temperature reaches the temperature limit (col. 6:52-59). Ito does not teach making the temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit. Takeda teaches making the temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit (col. 2:30-51). It would have been obvious to one having ordinary skill in the art at the time the invention was

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made to modify the apparatus of Ito to lower the temperature as taught by Takeda in order to prevent overloading of the switches.

Claims 5,7: Ito teaches the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 6:50-59). Takeda teaches the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 5:48-55, col. 4:66-5:3).

3. Claims 3,4,11,12,14,15, 17,18-22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US 5068777) in view of Stuart (US 5844399)

Claim 3,4: Ito teaches a motor control system comprising junction temperature calculating device for calculating a junction temperature of a switch of a converter including a temperature sensor (fig. 1:800) detecting the temperature at a switching element, wherein the junction temperature is determined from an equation (col. 6: eqn 4) wherein T_a is the measured temperature at a switch (col. 6:5-6), R_{th} is the thermal resistance (col. 6:15-16), current loss $P_{on} \cdot (I_o f_o)$ and switching loss $P_{sw} \cdot (I_o f_c)$ (col. 6:17-31) and junction temperature reducing element for comparing the junction with a preset temperature limit (col. 6:38-59) and for performing junction temperature reduction by reducing the switching loss $P_{sw} \cdot (I_o f_c)$ (col. 6:50-59) to make the junction temperature equal to or less than the temperature limit when the junction temperature reaches the temperature limit (col. 6:52-59) loss calculating means calculating the loss of the switching element of the converter when the temperature detected is less than or equal to the predetermined temperature (col. 2: 54-63; 6:17-59). Ito does not teach making the temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit or loss reducing means comparing the loss calculated by the loss calculating means with a loss limit when the temperature detected by the

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temperature detecting means is less than or equal to the predetermined temperature and for performing loss reduction processing to make the loss less than or equal to the loss limit when the loss exceeds the limit. Stuart teaches junction temperature reducing means for comparing the junction with a preset temperature limit and for performing junction temperature reduction to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit (col. 10:30-38); loss calculating means for calculating a loss of a switching element when the temperature is equal to or less than a limit and for performing loss reduction to make the loss equal to or less than a loss limit when the loss exceeds the limit (col. 10:30-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Ito control the loss as taught by Stuart in order to prevent overloading of the switches.

Claims 11,12,14,15: Ito teaches the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 6:50-59). Stuart teaches the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 10:30-38, 53-56).

Claim 17,18-22: Ito teaches the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 6:50-59). Stuart teaches the loss reducing means carries out loss reduction by reducing the frequency or reducing the current (col. 10:30-38, 53-56).

Response to Arguments

4. Applicant's arguments filed 7/11/07 have been fully considered but they are not persuasive.

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In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

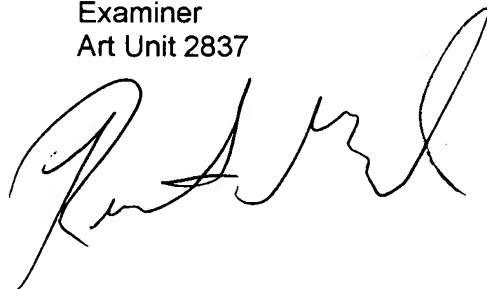
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Renata McCloud
Examiner
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rdm